

FIELD SAMPLING PLAN

FORMER FEDERAL-MOGUL SITE WEATHERLY, CARBON COUNTY PENNSYLVANIA

EPA CONTRACT NO.: EP-S3-15-02
TECHNICAL DIRECTION DOCUMENT NO.: W501-19-10-002
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Prepared For:



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January 2020



FINAL
FIELD SAMPLING PLAN
FORMER FEDERAL-MOGUL
WEATHERLY, CARBON COUNTY, PENNSYLVANIA

Approved by:

Nonresponsive based on revised scope

WESTON – Project Task Lead

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01/03/2020

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01/03/2020

Date



1.0 INTRODUCTION

Under the Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-15-02, Technical Direction Document No. W501-19-10-002, the U.S. Environmental Protection Agency (EPA) Region III tasked Weston Solutions, Inc. (WESTON®) to collect surface soil samples for Target Analyte List (TAL) metals including mercury in November 2019. In addition to the soil sampling, sub-slab soil vapor (air) samples for VOCs, and groundwater samples for VOCs and TAL metals (including mercury) will be collected at the Former Federal-Mogul facility (Site), in January 2020. The Site is located in Weatherly Borough, Carbon County, Pennsylvania. The Site location is shown in Figure 1, Site Location. The Site is bordered by residences on all sides. Commercial businesses along with a railroad are present to the east of the Site. The Site layout is shown in Figure 2, Site Layout.

The site has been used for manufacturing purposes since 1889 and has been owned and operated by several different companies throughout this time period. Products manufactured over this period varied from cathode-ray tubes and incandescent light bulbs to aviation components, including digital displays and power converters. Federal-Mogul acquired the site in early 1998 and by February 13, 1998, operations ceased (Environmental Strategies Corporation [ESC], 2002).

In early 1990, chlorinated solvents were detected in groundwater at the Site. Site assessment activities and remedial activities began at the direction of the Pennsylvania Department of Environmental Protection (PADEP). A groundwater treatment system was installed in 1991 in an attempt to remove trichloroethylene (TCE) and tetrachloroethylene (PCE). Degreasing operations were conducted at two locations on the Site. These locations are suspected to be the sources of the chlorinated solvents found in groundwater. In 1993, the two on-site sources for the chlorinated solvents in groundwater at the Site were remediated to PADEP's satisfaction. The groundwater treatment system was terminated in August 2001 after its continuous operation from 1991 until 2001. However, monitoring activities conducted in April 2001 indicated that TCE and PCE were present in groundwater at concentrations above applicable Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) and for Statewide Health Standards (SWHS) for groundwater medium-specific concentrations (MSCs) (ESC, 2002).

2.0 OBJECTIVE OF SAMPLING

The objective of the assessment is to further assess the Site and to determine whether TAL metals (including mercury) are present in the soil and groundwater at concentrations that may pose a risk to human health or the environment, and if VOCs are present in the groundwater at the Site and in soil gas underneath residences. To meet the objective of the assessment, WESTON will collect up to 16 surface soil samples from the vicinity of the former Federal-Mogul facility, 5 sub-slab air samples, and 3 water samples from a residential well located on site. WESTON developed the Field Sampling Plan (FSP) in accordance with the provisions of the EPA Region III START 5 Program-Wide Uniform Federal Policy-Quality Assurance Project Plan (UFP QAPP) (WESTON, 2015).

3.0 PROPOSED ACTIVITIES

This section consists of a description of the scope of work, including proposed sampling activities and field measurements, a summary of samples for the project, an explanation of how samples will be collected and handled, and a description of procedures to be followed for equipment decontamination and disposal of investigative-derived waste (IDW) generated during sampling.

3.1 SCOPE OF WORK

As part of the removal assessment for the Site, WESTON will perform the following tasks:

- Collect up to 16 soil samples including one field duplicate for TAL metals (including mercury).
- Install up to 4 sub-slab soil vapor sampling ports.
- Collect up to 5 sub-slab soil gas (air) samples including one field duplicate for VOCs.
- Collect up to 3 water samples including one field duplicate for VOCs and TAL metals (including mercury).
- Document and record sample locations using Global Positioning System (GPS) technology and enter sample location information into a Scribe® database.
- Photo document sampling activities and sampling locations.

- Package and ship all samples collected to the assigned EPA Contract Laboratory Program (CLP) laboratory or Tier IV laboratory (i.e., WESTON-subcontracted laboratory).

3.2 SAMPLE COLLECTION

This section consists of descriptions of the proposed sampling activities to be collected as part of field activities. Sampling locations will be determined by the On-Scene-Coordinator (OSC) in the field. Table 1 presents a summary of the matrices, analyses, analytical methods, containers, preservatives, detection limits, and maximum holding times for all samples proposed to be collected during the sampling event.

3.2.1 SURFACE SOIL SAMPLING

WESTON will collect up to 16 surface soil samples at a depth of 0 to 6 inches below ground surface (bgs) from locations around the former Federal-Mogul facility. The exact locations of these samples will be determined in the field by the OSC. WESTON will collect surface soil samples in accordance with WESTON Standard Operating Procedure (SOP) No. 302, Surface Soil Sampling (WESTON, 2019a). Soil samples will be collected from a depth of 0 to 6 inches bgs using a dedicated disposable plastic scoop. The soil will be homogenized in an aluminum pan and any vegetation or debris will be removed. The soil will then be placed into the appropriate sample container.

3.2.2 SUB-SLAB SOIL VAPOR SAMPLING

Sub-slab soil gas samples will be collected from residences surrounding the Site. Up to 5 sub-slab soil vapor samples will be collected at locations to be determined by the OSC at the time of sample collection. All samples will be collected following procedures outlined in WESTON Standard Operating Procedure (SOP) No. 806, Summa Canister Sampling (WESTON, 2019d). Soil gas samples will be analyzed for VOCs by EPA Compendium Method Toxic Organics-15 (TO-15) (EPA, 1999).

For all new sub-slab sample ports, the following installation method will be utilized:

- Using an electric Hammer Drill or Rotary Hammer, an inner or pilot hole is drilled into the concrete slab to a depth of approximately 2 inches with the 1/2-inch diameter drill bit.

- Using the pilot hole as the center, an outer hole is drilled to an approximate depth of 3/4-inch using a 1-inch diameter drill bit. The 1-inch diameter drill bit is then replaced with the 1/2-inch drill bit.
- The pilot hole is drilled through the slab and several inches into the sub-slab material to create a pathway for vapor.
- Once drilling is completed, the hole will be vacuumed using an industrial type vacuum, and a pre-assembled brass or stainless steel probe (VaporPin) will be inserted into the pre-drilled hole and sealed with modeling clay/cement mix. A length of Teflon[®] tubing will be attached from the probe assembly to a Summa canister.

Following sub-slab soil vapor probe installation, the soil gas will be allowed to equilibrate for 2 hours. To ensure the sub-slab sampling results are representative of the vapor beneath the slab and verify that ambient air is not being introduced into soil gas samples, a leak test is performed using helium following WESTON SOP No. 812, Sub-Slab Sampling (WESTON, 2018). The helium concentrations are measured within the shroud and sample tubing. A positive leak test, indicated when the helium concentration in the sample tubing exceeds 10 percent of the concentration in the shroud, shows that the sampling probe is pulling indoor air into the sample. If this is the case, the sample point will be repaired or replaced. A negative leak test indicates the probe is sealed and leak-tight. After the leak test passes (negative), a Summa canister will be connected to tubing extending above the slab surface following EPA Environmental Response Team (ERT) SOP No. 1704 (EPA ERT, 1995).

One sub-slab soil vapor sample will be collected from each sampling point unless a duplicate sample is required at the location. To collect soil gas field duplicates, a T-splitter will be used to connect two canisters to one sampling point. All soil gas samples will be collected in individually-certified 6-liter stainless-steel Summa canisters fitted with a calibrated 24-hour flow controller. The flush mount sub-slab soil gas probe may be left in place for future sampling. If permanently abandoned, the void will be filled with hydraulic cement and smoothed with a trowel or putty knife.

3.2.3 GROUNDWATER SAMPLING

Weston will collect up to three groundwater samples from a residential drinking water well located on site. The samples will be collected from a sampling port located on the well system prior to and after the treatment system, if present. Groundwater samples will be analyzed for VOCs and TAL Metals (including mercury). All groundwater samples will be collected in accordance with WESTON SOP No.201, Groundwater Sampling (WESTON, 2019a).

3.3 SAMPLE IDENTIFICATION

The Sample Identifier will be listed on the chain-of-custody document for each sample and will provide the date and sample location as follows:

FFM-MMDDYY-SS/WS/SG-###

The “FFM” prefix refers to the Site name – Former Federal-Mogul. The MMDDYY refers to the date of sample collection (i.e., 111919 for November 19, 2019). The “SS” portion of the Sample Identifier refers to the sample type, surface soil. The “GW” portion of the sample identifier refers to the sample type, groundwater sample. The “SG” portion of the sample identifier refers to the sample type, soil gas (air) sample. The “###” portion of the suffix refers to the unique sequential sample number assigned to a specific sampling location.

In addition to the Sample Identifier, samples to be shipped to the EPA Region III Laboratory, CLP laboratory, or Tier IV laboratory for analysis will be assigned unique CLP sample numbers. The inorganic CLP sample ID will be in the format MC##### (where the # may represent a number or letter). Organic samples (VOCs) will be identified in the format C##### (where the # may represent a number or letter). The CLP sample number and the Sample Identifier will be included on the chain-of-custody, the bottle labels, and the sample tags attached to each bottle or canister.

3.4 SAMPLE MANAGEMENT

WESTON will document field activities using logbooks, photographic records, and chain-of-custody documentation. Documentation, record keeping, and data management activities will be conducted in accordance with the WESTON UFP-QAPP (WESTON, 2015) and in accordance with the *Contract*



Laboratory Program Guidance for Field Samplers (EPA, 2014), unless otherwise specified. Each sampling location will be noted in the field logbook in accordance with WESTON SOP No. 101, Logbook Documentation (WESTON, 2019b). Scribe software will be used for sample documentation and data management.

Sample handling, packaging, and shipment procedures will be in accordance the *Contract Laboratory Program Guidance for Field Samplers* (EPA, 2014) for samples shipped to CLP or Tier IV laboratories or the U.S. EPA Region III *Sample Submission Procedures for the Laboratory and Technical Services Branch (LTSB) Laboratory Section* (EPA, 2019) for samples sent to the EPA Region III Environmental Science Center Laboratory Section at Fort Meade, MD. Sample labels and tags will be affixed to each soil or groundwater sample jar shipped to the laboratory. Soil and groundwater samples will be placed in plastic zipper bags. Bagged containers will be placed in coolers with ice and packed with appropriate absorbent material. All sample documents will be sealed in a plastic zipper bag and affixed to the underside of each cooler lid. The lid will be sealed with shipping tape and custody seals will be affixed to the cooler. Coolers will be labeled with the origin and destination locations.

Sample tags will be affixed to the Summa canisters and shipped to the laboratory in appropriate containers with the COCs and sample tags. Containers will be labeled with the origin and destination locations.

Chain-of-custody documents will be completed using Scribe software and will accompany field samples to the laboratory in accordance with WESTON SOP No. 103, Chain-of-Custody Documentation (WESTON, 2019c). Samples will be shipped to the designated laboratory via Federal Express. Regulations for packaging, marking, labeling, and shipping hazardous materials and wastes are promulgated by the U.S. Department of Transportation. Air carriers that transport hazardous materials require compliance with the current International Air Transport Association (IATA) regulations, which apply to shipment and transport of hazardous materials by air carrier. WESTON will follow all applicable IATA regulations.

3.5 DECONTAMINATION AND INVESTIGATION-DERIVED WASTE

Dedicated, disposable sampling equipment and personal protective equipment (PPE) will be used wherever applicable. Disposable sampling equipment and PPE will be double-bagged and disposed of

as dry industrial waste. IDW is defined as any byproduct of the field activities that is suspected or known to be contaminated with hazardous substances. IDW will be handled in accordance with Office of Land and Emergency Management (OLEM) formerly known as Office of Solid Waste and Emergency Response (OSWER) 9345.3-02 and WESTON SOP No. 019, Investigative Derived Waste Compliance Plan (WESTON, 2019d).

4.0 ANALYTICAL PARAMETERS AND METHODS

Soil samples collected for TAL metals will be analyzed by Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) and mercury by Cold Vapor Atomic Absorption (CVAA). Analysis will be conducted in accordance with EPA CLP Method ISM02.4 for inorganics (EPA, 2016a).

Groundwater samples will be analyzed for Trace VOCs by CLP method SOM02.4 (EPA, 2016b) and for TAL metals (including mercury) by Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) and CVAA (EPA, 2016a).

All air (soil gas) samples will be analyzed for VOCs by EPA Compendium Method TO-15 (EPA, 1999).

A table summarizing the analyses, analytical methods, containers, preservatives, QA/QC samples, and technical holding times for the samples proposed for collection during the sampling event is provided in Table 1.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

This section describes the QA and QC procedures for personnel during the site sampling event, including responsibilities, field QC, laboratory QC, data evaluation, and data management.

5.1 FIELD QUALITY CONTROL

Field QA/QC measures will consist of collecting field duplicate samples and trip blanks. These measures will be applied in accordance with the WESTON EPA Region III START 5 Program-Wide UFP QAPP (WESTON, 2015). The number and types of QC samples to be collected are summarized in Table 1.



Field duplicate samples will be collected at a rate of one per 20 samples per sample matrix and will be used to test the reproducibility of sampling procedures and analytical results.

Trip blank samples will be collected and provided in each cooler containing groundwater samples for VOC analysis. Trip blank samples will be used to assess whether samples may have become cross-contaminated with VOCs during storage and shipment.

Temperature blanks will be placed in each sample cooler and used to determine whether samples have been adequately cooled during shipment and storage. The temperature blank will be prepared using tap water placed in a volatile organic analysis (VOA) vial without preservative.

5.2 LABORATORY QUALITY CONTROL

Samples will be shipped to the EPA Region III Environmental Science Center Laboratory Section of the Laboratory Services & Applied Science Division located in Fort Meade, MD, or the CLP laboratory assigned through the EPA Region III Laboratory Section (formerly *Office of Analytical Services and Quality Assurance (OASQA) Laboratory Branch*), or the subcontracted Tier IV laboratory. Laboratory QC measures will consist of all QC elements identified in the analytical method or CLP Statement of Work (SOW) as required by EPA Region III policy, and will incorporate all reportable QC (including forms and deliverables) required by the SOW and this FSP. Analysis of matrix spike/duplicate (S/D) samples is required for TAL metals and mercury analysis. EPA Region III policy does not require collection of Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples for VOCs.

S/D sample results are used to assess analytical precision and accuracy in a specific sample matrix. WESTON field personnel will collect a minimum of one S/D sample per 20 samples of the same matrix. Additional sample volume is not required for the soil samples. See Table 1, Analytical Parameters, for a summary of QA/QC samples being collected.

5.3 DATA VALIDATION

Validation of all analytical data will be performed by the Environmental Services Assistance Team (ESAT) contractor under the direction of the Region III Laboratory Section of the Laboratory Services & Applied Science Division. Inorganic data will be validated at the Inorganic Level 2 level in accordance with the USEPA *National Functional Guidelines for Inorganic Superfund Methods Data*

Review, USEPA-540-R-2017-001 (EPA, 2017a). Organic data will be validated at the Organic Level 2 level in accordance with the USEPA *National Functional Guidelines for Organic Superfund Methods Data Review*, USEPA-540-R-2017-002 (EPA, 2017b).

5.4 DATA EVALUATION AND MANAGEMENT

This section describes how WESTON will evaluate data generated from the sampling event, determine whether data are representative of the Site, and make certain that data are secure and retrievable.

5.4.1 DATA EVALUATION

WESTON will review the data validation reports to determine whether any major or minor deficiencies were encountered during sampling and analysis. These deficiencies may include major deficiencies (such as unusable or rejected data) or minor deficiencies affecting data, including data that were estimated or qualified due to failure to meet project-specific or National Functional Guideline QC acceptance limits.

To assess the effectiveness of field sampling procedures and implement corrective actions as needed, WESTON will evaluate field duplicate and field blank results. Failure of the temperature blank to meet the temperature acceptance criteria indicates the need to better ice down the samples.

5.4.2 DATA REPRESENTATIVENESS AND COMPLETENESS

The intent of this FSP is to obtain a complete data set that is representative of site conditions. Data will be reviewed for completeness. If not all samples were collected, resulting in less than 100% completeness, the reason for the data gaps will be identified in the Trip Report. If any data are rejected, the reason for the data rejection will be discussed in the Trip Report. If sampling activities or procedures vary significantly from this FSP due to unexpected conditions in the field or other unforeseeable factors, WESTON will discuss these deviations from the FSP and whether the changes affect data representativeness in the Trip Report.

5.4.3 DATA MANAGEMENT

EPA Region III will provide WESTON with a validation report for the analytical data in portable document file (pdf) format along with an importable Excel electronic data deliverable (EDD).



WESTON will upload the EDD data to the Scribe database and compare the EDD results to the sample results received in pdf format in conjunction with the data validation report to ensure their consistency. All electronic data will be stored in a Scribe database for future retrieval and reference, based on the OSC's requirements.

6.0 SCHEDULE AND DELIVERABLES

WESTON anticipates that soil sample collection will take place between November 19 and 20, 2019. WESTON anticipates that air and water sampling will take place between January 14 and 17, 2020. WESTON will ship samples to the assigned laboratory for analysis. WESTON expects to receive validated analytical data from EPA Region III approximately 35 days after the laboratory receives the samples. WESTON will provide EPA with the Trip Report within 60 days after all site activities have been completed and validated data are available.

Information obtained during the sampling event will be compiled into a Trip Report. The Trip Report will discuss data collection methods and document sampling locations and include data summary tables, figures, maps, and site photographic documentation.

7.0 REFERENCES

- ESC (Environmental Strategies Corporation). 2002. Remedial Investigation and Final Report Former Champion Aviation Products Facility, Weatherly, Pennsylvania. April.
- EPA (U.S. Environmental Protection Agency). 1999. *Determination of Volatile Organic Compounds (VOCs) In Air Collected in Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)*. Office of Research and Development. EPA 625/R-96/010b. January.
- EPA. 2014. *Contract Laboratory Program Guidance for Field Samplers*. Office of Superfund Remediation and Technology Innovation. Office of Solid Waste and Emergency Response (OSWER) 9200.2-147 EPA 540-R-014-013. October.
- EPA. 2016a. *EPA Contract Laboratory Program Statement of Work For Inorganic Superfund Methods, Multi-Media, Multi-Concentration*, ISM02.4. October.
- EPA. 2016b. *EPA Contract Laboratory Program Statement of Work for Organic Superfund Methods, Multi-Media, Multi-Concentration*, SOM02.4. October.
- EPA. 2017a. *National Functional Guidelines for Inorganic Superfund Methods Data Review (ISM02.4)*. USEPA-540-R-2017-001. January.
- EPA. 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review (SOM02.4)*. EPA 540-R-2017-002. January.
- EPA. 2019. *Sample Submission Procedures for the Laboratory and Technical Services Branch (LTSB) Laboratory Section*. Laboratory and Technical Services Branch. Revision 15.0. August.
- WESTON (Weston Solutions, Inc.). 2015. *EPA Region III Superfund Technical Assessment and Response Team 5 (START-5 Contract) Program-Wide Uniform Federal Policy Quality Assurance Project Plan (QAPP)*. September.
- WESTON (Weston Solutions, Inc.). 2019a. Surface Soil Sampling. Standard Operating Procedure (SOP) No. 302. November.
- WESTON (Weston Solutions, Inc.). 2019b. Logbook Documentation. SOP No. 101. August.
- WESTON (Weston Solutions, Inc.). 2019c. Chain-of-Custody Documentation. SOP No. 103. August.
- WESTON (Weston Solutions, Inc.). 2019d. Investigative Derived Waste Compliance Plan. SOP No. 019. August.
- WESTON (Weston Solutions, Inc.). 2019a. Groundwater Well Sampling. SOP No. 201. February.
- WESTON (Weston Solutions, Inc.). 2019c. Indoor Air Sampling. SOP No. 801. October.



WESTON (Weston Solutions, Inc.). 2019d. Summa Canister Sampling. SOP No. 806. October.



ANALYTICAL PARAMETERS TABLE

Table 1 Analytical Parameters

Matrix	Parameter	Analytical Method	Container Type	Preservative	Detection Limit	Technical Holding Time	Number of Field Samples	Number of Field Duplicates	Number of Field Blanks	Number of Lab QC Samples ¹
Soil	TAL Metals and Hg	CLP SOW ISM02.4 (ICP-AES)	One 8-oz jar	Ice	CRQL	180 days for metals (except 28 days for Hg)	15	1	0	1 S/D
Water	Trace VOCs	SOM02.4	3 x 40-mL amber glass VOA vials	HCl to pH<2; Ice	CRQL	14 days	2	1	1 TB	0
Water	TAL Metals and Hg	CLP SOW ISM02.4 (ICP-MS)	One 1-L poly	HNO ₃ to pH<2; Ice	CRQL	180 days for metals (except 28 days for Hg)	2	1	0	1 S/D
Air (Soil Gas)	VOCs	TO-15	1 x 6-Liter Summa Canister	None	Laboratory Reporting Limits	30 days	4	1	0	0

¹ Designate 1 sample per 20 samples for laboratory QC (i.e., S/D for inorganic analysis). Additional sample volume is not required for the soil inorganic sample designated for S/D analysis. Lab QC samples are not required for VOCs in accordance with EPA Region III policy.

CLP = Contract Laboratory Program

CRQL = Contract-required quantitation limit

HCl = hydrochloric acid

Hg = Mercury

HNO₃ = nitric acid

ICP-AES = Inductively coupled plasma-atomic emission spectroscopy

ICP-MS = Inductively coupled plasma-mass spectroscopy

ISM02.4 = CLP SOW Inorganic Superfund Method version 2.4

mL = milliliter

oz = ounce

poly = polyethylene

QC = Quality control

S/D = matrix spike/duplicate

SOM02.4 = Superfund Organic Method version 2.4

SOW = Statement of work

TAL = Target analyte list

TO-15 = Toxic Organics Method 15

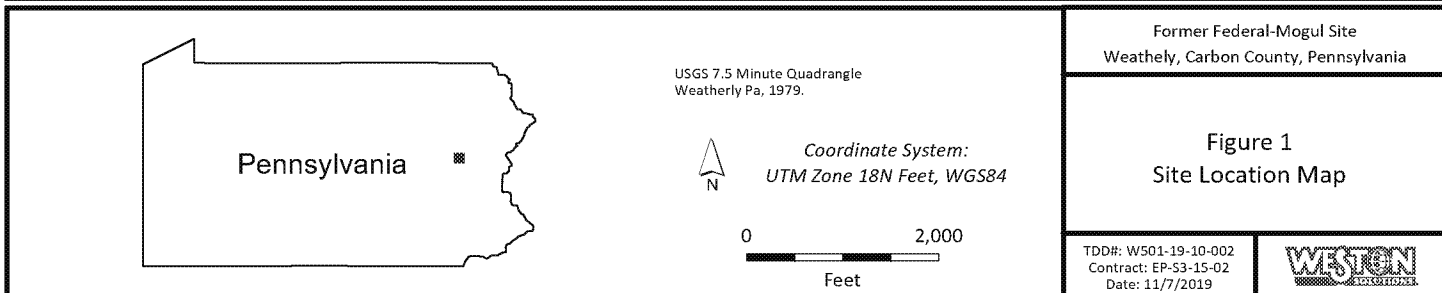
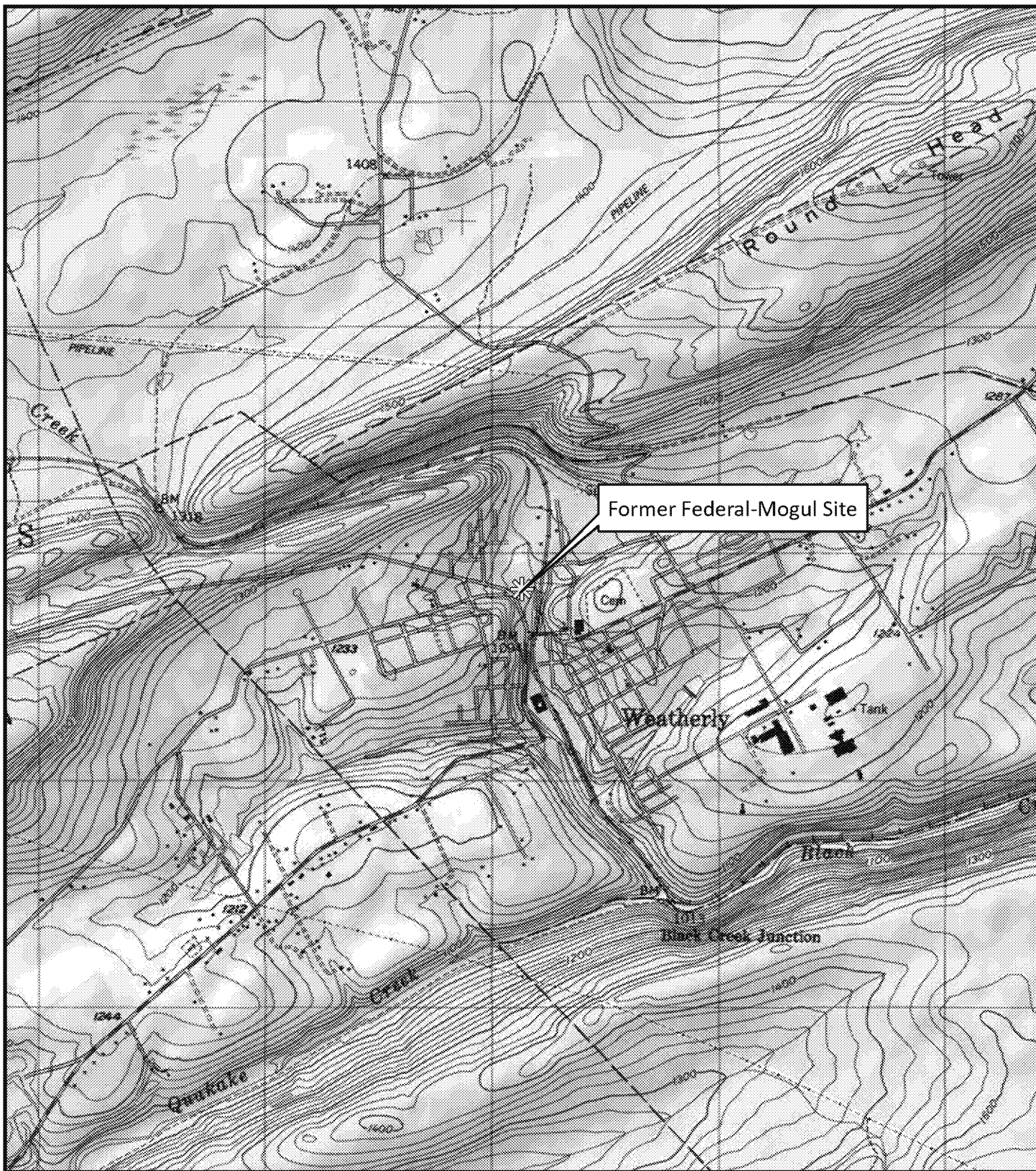
VOA = volatile organic analysis

VOCs = Volatile Organic Compounds

TB = trip blank





FIGURES



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Legend

-  Site Boundary
-  Railroad

Aerial Imagery - ESRI, Bing Mapping Service



Coordinate System:
UTM Zone 18N Feet, WGS84

0 200
Feet

Former Federal-Mogul Site
Weathely, Carbon County, Pennsylvania

Figure 2
Site Layout Map

TDD#: W501-19-10-002
Contract: EP-53-15-02
Date: 11/8/2019

